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mercial career, and ultimately succeeded his father in business as a merchant. For many years he was a prominent figure in the commercial life of the city of Birmingham. He was deeply interested in charitable and philanthropic affairs, and served on the committee of the Queen's Hospital. He was also a member of the Council of the Midland Institute.

He made a donation of £10 to the Society's Library funds, from which, among other books, a fine copy of *Astronomi Veteres* (Aldus), 1499, was purchased.

He died on 1914 April 11, leaving one son and two daughters. He was elected a Fellow of the Society on 1897 February 12.

John Benjamin Stone was born at Birmingham on 1838 February 9. He was educated at Birmingham Grammar School, and was afterwards in business as a paper manufacturer. He was knighted in 1892, and from 1895 to 1909 he represented East Birmingham in the House of Commons in the Conservative interest. He also took an active part in local affairs, and was five times Mayor of Sutton Coldfield.

His success in business, combined with robust health, enabled him to gratify his inclination for foreign travel and to pursue his favourite hobby of photography. He visited nearly every part of the world, and described and illustrated his travels in a number of books. When in Brazil, in 1893, he joined the British Eclipse Expedition at Ceara, and rendered assistance to the observers by making the exposures with the slit spectrograph. Thenceforward he took a genuine interest in astronomy, and was always well informed with regard to new discoveries and theories. He did not, however, set up an observatory of his own.

Sir Benjamin will be long remembered as an expert amateur photographer. His camera accompanied him on all his travels, and was a familiar object on the Terrace at Westminster, which forms the background of a collection of portraits of national interest. He was especially interested in making pictorial records of customs and ceremonies surviving from ancient times. He was appointed Official Photographer for the Coronation by the King in 1911.

Two volumes entitled *Sir Benjamin Stone's Pictures* (Cassell & Co.) are household works, one illustrating Parliamentary scenes and portraits, the other festivals, ceremonies, and customs. More than 1200 of Sir Benjamin's beautiful prints are stored in the British Museum, and form the nucleus of a collection illustrating a survey of the whole country now in course of making by the National Photographic Record Association, of which he was the founder and first President. His own collection of between twenty and thirty thousand photographs gives some indication of his enthusiasm and amazing industry.

Sir Benjamin died at his residence, Erdington Grange, on 1914 July 2, leaving four sons and two daughters.

Lady Stone died three days after her husband, in ignorance of

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his death, and both were buried in the same grave at Sutton Coldfield on July 7.

He was elected a Fellow of the Society 1894 June 8.

Thomas Thorp was born on 1850 October 26, his father being a farmer near Narrow Lane, Besses. Educated first at the Park Lane School, and afterwards at the Grammar School, he then became an apprentice with a Manchester firm of architects and surveyors, taking part during this time in the pioneer work in connection with the town-planning of New Brighton. Quite early in life he showed signs of having inherited the inventive tendencies of his father, devoting much of his time to the devising of practical applications of his scientific knowledge. This tendency to work on practical adaptations of science led him more towards civil and mechanical engineering, and he gradually built up a business for the manufacture of his patented inventions. For thirty years he was the engineer to the Whitefield Local Board and the District Council. He was the first to produce a workable scheme for penny-in-the-slot gas meters; he invented the rotary gas meter, and a tiny device of his for economical regulation of gas delivery has been very widely employed by manufacturers and public authorities.

His devotion to astronomy commenced in his boyhood, and much of his optical equipment was the result of his own labour. He had two observatories: one at his home at Whitefield, the other at a country bungalow at Prestatyn, North Wales. He made and mounted several good telescopes, both reflectors and refractors, and acquired great personal skill in the working of optical glass. He also made several fine objective prisms, one of which has produced excellent results in the hands of Father Cortie at Stonyhurst College. His polarising solar eyepiece and prominence spectroscope have been widely used. Although not strictly a systematic observer, he devoted a good deal of time to work in his observatory. His principal instrument was an 8-inch Cooke equatorial with a photo-visual objective, which, with its spectroscope and attachments for photographic work, has been presented by his family to the Stand Grammar School, near Manchester. The name of Thorp will long be remembered in connection with the beautiful replicas of diffraction gratings which have made the study of spectroscopic astrophysics possible to so many lovers of the science. In addition to putting these on the market at a moderate price, he was most lavish in his generous distribution of them to professional and amateur workers throughout the world. For many years no method for obtaining reproductions of finely ruled diffraction gratings had been known except those published by Lord Rayleigh and M. Izarn, both being photographic methods. Mr. Thorp conceived the brilliant idea of taking a cast of the ruled surface in a transparent medium, and finally decided on a thin solution of celluloid in amyl acetate. This he announced in 1898, and he rapidly improved his process by patient and painstaking experiments on the

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